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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/447,788	11/23/1999	NOBORU SUZUKI	1232-4600	4253

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EXAMINER	
HANNETT, JAMES M	

ART UNIT	PAPER NUMBER
2612	7

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/447,788	SUZUKI, NOBORU	
	Examiner	Art Unit	
	James M Hannett	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 3-9, 12-14 and 16-21* is/are rejected.

7)☒ Claim(s) *2,10,11 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 November 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1: Claims 1, 3-9, 12-14 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,754,895 Nishino in view of USPN 5,434,637 Ohta.

2: In regards to Claim 1, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 an optical apparatus having a drive circuit (12) for controlling a moving member of the optical apparatus which moves within a movable range (Lo), comprising:

A determination circuit (20) which determines a driving speed of the moving member on the basis of position data that represents the movable range with a value, speed data represented in accordance with a speed change ratio, and a value representing an actual movable range of the moving member within the movable range. The time required to move the moving member or lens within the predetermined range is viewed by the examiner as the velocity of the lens. The step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased

the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes.

Nishino does not teach the use of interchangeable lens barrels and only teaches the method for controlling the lens speed based on one set lens system and does not teach the method of allowing interchangeable lens barrels and driving the different lens systems with normalized speed and position data.

Ohta teaches on Column 2, Lines 3-18 and Column 11, Lines 51-58 and Column 12, Lines 532-65 that it is advantageous to allow a camera to use interchangeable lens barrels to increase the cameras field of view. Ohta further teaches that it is advantageous when driving an autofocus function in different lens barrels to provide the lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Nishino to use interchangeable lens barrels as taught by Ohta and to drive the different lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

3: As for Claim 3, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 an optical apparatus having a drive circuit (12) for receiving speed data communicated from a unit (20) which sends the speed data representing speed information and controlling, on the basis of the speed information, the speed of a moving member which moves within a movable range (Lo), comprising a determination circuit (20) which determines a driving speed of the moving member on the basis of the normalized speed information and position information representing

the movable range as a normalized number; and a changing circuit which changes the number of position information representing the movable range as another normalized number, in accordance with time information required to move the moving member within the movable range, wherein the drive circuit drives the moving member at a speed determined by the determination circuit. The time required to move the moving member or lens within the predetermined range is viewed by the examiner as the velocity of the lens. The step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes.

Nishino does not teach the use of interchangeable lens barrels and only teaches the method for controlling the lens speed based on one set lens system and does not teach the method of allowing interchangeable lens barrels and driving the different lens systems with normalized speed and position data.

Ohta teaches on Column 2, Lines 3-18 and Column 11, Lines 51-58 and Column 12, Lines 532-65 that it is advantageous to allow a camera to use interchangeable lens barrels to increase the cameras field of view. Ohta further teaches that it is advantageous when driving an autofocus function in different lens barrels to provide the lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Nishino to use interchangeable lens barrels as taught

by Ohta and to drive the different lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

4: In regards to Claim 4, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 an optical apparatus having a drive circuit (12) for receiving speed data communicated from a unit (20) which sends the speed data representing normalized speed information and controlling, on the basis of the normalized speed information, the speed of a moving member which moves within a movable range, comprising a determination circuit (20) which determines a driving speed of the movable member on the basis of normalized position data and the normalized speed data, the position data representing the movable range as a normalized number predetermined in accordance with a time for moving the moving member within the movable range, wherein the drive circuit drives the moving member at a speed determined by the determination circuit. The time required to move the moving member or lens within the predetermined range is viewed by the examiner as the velocity of the lens. The step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes.

Nishino does not teach the use of interchangeable lens barrels and only teaches the method for controlling the lens speed based on one set lens system and does not teach the method of allowing interchangeable lens barrels and driving the different lens systems with normalized speed and position data.

Ohta teaches on Column 2, Lines 3-18 and Column 11, Lines 51-58 and Column 12, Lines 532-65 that it is advantageous to allow a camera to use interchangeable lens barrels to

increase the cameras field of view. Ohta further teaches that it is advantageous when driving an autofocus function in different lens barrels to provide the lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Nishino to use interchangeable lens barrels as taught by Ohta and to drive the different lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

5: As for Claim 5, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 the speed data represents a moving amount per unit time as a step number. Nishino teaches the step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes. The speed data represented by a step number is viewed by the examiner as the number of encoder pulses received by the microcomputer (20).

6: In regards to Claim 6, Nishino teaches on Columns 1 and 2, Lines 66-67 and 1-3 the position data represents the movable range as a step number.

7: As for Claim 7, Nishino teaches on Column 3, Lines 12-30 the speed control circuit determines the speed in accordance with a ratio of speed data and position data. The ratio is viewed as the comparison of the target number of pulses calculated by the target number of pulses calculated by the target pulse number calculating means with the predetermined distance.

8: In regards to Claim 8, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 an optical unit (10) having a moving member moving within a movable range (Lo) and a drive circuit (12) for controlling a speed of the moving member, comprising

A determination circuit (20) which determines the speed of the moving member on the basis of position data representing the movable range as a normalized step number and speed data representing a moving amount per unit time as another normalized step number within the movable range, wherein the step number of the position data representing the movable range is changed in accordance with a speed control state. The step number is viewed as the number of pulses received by the microcomputer that is frequency divided based on the required speed and travel distance of the lens. The time required to move the moving member or lens within the predetermined range is viewed by the examiner as the velocity of the lens. The step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes.

Nishino does not teach the use of interchangeable lens barrels and only teaches the method for controlling the lens speed based on one set lens system and does not teach the method of allowing interchangeable lens barrels and driving the different lens systems with normalized speed and position data.

Ohta teaches on Column 2, Lines 3-18 and Column 11, Lines 51-58 and Column 12, Lines 532-65 that it is advantageous to allow a camera to use interchangeable lens barrels to increase the cameras field of view. Ohta further teaches that it is advantageous when driving an

autofocus function in different lens barrels to provide the lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Nishino to use interchangeable lens barrels as taught by Ohta and to drive the different lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

9: As for Claim 9, Nishino teaches the step number of the position data changes in accordance with time information required to move the moving member within the movable range. The step number is viewed as the number of pulses received by the microcomputer that is frequency divided based on the required speed and travel distance of the lens. The time required to move the moving member or lens within the predetermined range is viewed by the examiner as the velocity of the lens. The step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes.

10: In regards to Claim 12, Nishino teaches on Column 3, Lines 12-30 the speed control circuit determines the speed in accordance with a ratio of speed data and position data. The ratio is viewed as the comparison of the target number of pulses calculated by the target number of pulses calculated by the target pulse number calculating means with the predetermined distance.

11: As for Claim 13, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 an optical unit having a moving member moving within a movable range and a drive circuit for

controlling a speed of the moving member, comprising: a speed control circuit (20) which determines a speed of the moving member on the basis of position data representing the movable range as a normalized step number and speed data representing a moving amount per unit time as another normalized step number within the movable range; and A communication unit which communicates the position data from an apparatus connected to the optical unit. Nishino teaches that the micro controller divides the total range into high speed and low speed regions. The speed is determined based on the current location of the lens the current speed of the lens and the total travel distance. The moving amount per unit time as the step number is viewed by the examiner as the number of pulses from the encoder per unit time.

Nishino does not teach the use of interchangeable lens barrels and only teaches the method for controlling the lens speed based on one set lens system and does not teach the method of allowing interchangeable lens barrels and driving the different lens systems with normalized speed and position data.

Ohta teaches on Column 2, Lines 3-18 and Column 11, Lines 51-58 and Column 12, Lines 532-65 that it is advantageous to allow a camera to use interchangeable lens barrels to increase the cameras field of view. Ohta further teaches that it is advantageous when driving an autofocus function in different lens barrels to provide the lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Nishino to use interchangeable lens barrels as taught

by Ohta and to drive the different lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

12: In regards to Claim 14, Nishino teaches the step number of the position data changes in accordance with time information required to move the moving member within the movable range. The step number is viewed as the number of pulses received by the microcomputer that is frequency divided based on the required speed and travel distance of the lens. The time required to move the moving member or lens within the movable range is viewed by the examiner as the velocity of the lens. The step number changes when the driving velocity of the lens changes. Nishino teaches on Column 4, Lines 56-61 and on Column 5, Lines 3-30 that as the travel distance for the lens is increased the microcomputer will divide the number of encoder pulses to 1/N and that as the speed of the motor is changed the frequency division changes.

13: In regards to Claim 16, Nishino teaches on Column 3, Lines 12-30 the speed control circuit determines the speed in accordance with a ratio of speed data and position data. The ratio is viewed as the comparison of the target number of pulses calculated by the target number of pulses calculated by the target pulse number calculating means with the predetermined distance.

14: As for Claim 17, Nishino teaches on Column 4, Lines 50-55 the speed data is communicated from the apparatus. The apparatus is viewed as the microcomputer (20)

15: In regards to Claim 18, Nishino teaches the optical unit comprises a lens unit, and the apparatus comprises a camera. The Examiner views the lens as the optical unit and the microcomputer and circuitry as the camera.

16 As for Claim 19, Nishino teaches on Column 4, Lines 39-45 and Column 5, Lines 3-30 an optical unit having a moving member (1) moving within movable range (Lo) and a drive

circuit (12) for controlling a speed of the moving member, comprising: a determination circuit (20) which determines a speed of the moving member on the basis of position data representing the movable range as a normalized step number and speed data representing a moving amount per unit time as another normalized step number within the movable range, Wherein the drive circuit drives the moving member at a speed determined by the determination circuit. Nishino teaches that the micro controller divides the total range into high speed and low speed regions. The speed is determined based on the current location of the lens the current speed of the lens and the total travel distance.

Nishino does not teach the use of interchangeable lens barrels and only teaches the method for controlling the lens speed based on one set lens system and does not teach the method of allowing interchangeable lens barrels and driving the different lens systems with normalized speed and position data.

Ohta teaches on Column 2, Lines 3-18 and Column 11, Lines 51-58 and Column 12, Lines 532-65 that it is advantageous to allow a camera to use interchangeable lens barrels to increase the cameras field of view. Ohta further teaches that it is advantageous when driving an autofocus function in different lens barrels to provide the lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to enable the camera of Nishino to use interchangeable lens barrels as taught by Ohta and to drive the different lens barrels with normalized speed and driving information in order to perform a high precision speed control for each exchangeable lens.

17: In regards to Claim 20, Nishino teaches the speed data is communicated from an apparatus connected to the optical unit. The apparatus is viewed by the examiner as the micro controller.

18: As for Claim 21, Nishino teaches the optical unit comprises a lens unit (1), and the apparatus comprises a camera.

Allowable Subject Matter

19: Claims 2, 10, 11 and 15 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. USPN 5,202,555 Ishida et al teaches the use of utilizing normalized speed values to drive a focus lens.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M Hannett whose telephone number is 703-305-7880. The examiner can normally be reached on 8:00 am to 5:00 pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James M. Hannett
Examiner
Art Unit 2612

JMH
April 2, 2004

NGOC-YEN VU
PRIMARY EXAMINER